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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/923,510

08/06/2001

Grant Christiansen

TI-31440

1772

23494

7590

02/23/2005

TEXAS INSTRUMENTS INCORPORATED
P O BOX 655474, M/S 3999
DALLAS, TX 75265

EXAMINER

BELLO, AGUSTIN

ART UNIT

PAPER NUMBER

2633

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/923,510

Applicant(s)

CHRISTIANSEN ET AL.

Examiner

Agustin Bello

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/30/04 from the BPAI.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9,10,12-14 and 22-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9,10,12-14 and 22-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Prosecution Reopened

1. Prosecution is reopened in view of the remand by the Board of Patent Appeals and Interferences in the decision rendered 12/30/04.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 9-10, 12-14, and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Willebrand (U.S. Patent No. 6,239,888) in view of Reichman (U.S. Patent No. 6,535,716).

Regarding Claim 9, Willebrand teaches an optical wireless link comprising: a photodetector (reference numeral 32, 36, 84, 40, and 100 in Figure 11 and reference numeral 110 in Figure 12) configured to receive a single modulated light beam (reference numeral 24 in Figure 11); the modulated light beam conveying data signals (e.g. "status and management information" and "unique identification" carried on signal 42y of column 14 lines 1-19) and control signals (e.g. "control signal" of column 12 line 51 – column 14 line 19, also carried on signal 42y) on a single wavelength (e.g. 42y of column 14 lines 1-19); a control circuit (reference numeral 100 in Figure 11) coupled to the photodetector (reference numeral 32, 36, 84, 40, and 100 in Figure 11 and reference numeral 110 in Figure 12), the control circuit receiving the data and control signals conveyed by the single modulated light beam (reference numeral 42y in Figure 11), and extracting therefrom embedded control information (column 13 lines 17-21); a

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processor (column 12 lines 1-4) coupled to the control circuit and receiving therefrom the control information (column 13 lines 17-21) and generating in response thereto beam alignment signals (column 14 lines 49-60); a beam transmitter coupled to the processor (reference numeral 32,44, 52,84 in Figure 11) and receiving therefrom the beam alignment signals (reference numeral 106 in Figure 11); the beam transmitter adjusting alignment of a light beam in response to the beam alignment signals (column 14 lines 49-60). Willebrand differs from the claimed invention in that Willebrand fails to specifically teach that the data signals and the control signals are packet type signals that are time division multiplexed into a single packet stream. However, the disclosure of Willebrand at minimum suggests that the data and control signals are multiplexed in that Willebrand teaches carrying identification data, status data, control signals, and management data for each station on a single wavelength (column 14 lines 1-19). Willebrand's disclosure further suggests that the data and control signals are packetized in that they each represent separate and distinct bundles of data organized in a specific way for transmission. In appreciating Willebrand's disclosure, one skilled in the art would have sought guidance on how the data and control signals could have been multiplexed onto a single wavelength in packet form to create a single packet stream. In pursuing Willebrand's suggestion of data and control packets multiplexed onto a single packet stream, one skilled in the art would likely have turned to Reichman, which, in the same field of wireless communication, teaches that a well known method for combining control and data packets onto a single frequency is by time division multiplexing the control and data packets onto the single frequency (column 4 lines 54-62). Given the suggestion by Willebrand of a single packet stream comprising time division multiplexed data and control packets (column 14 lines 1-19) and the specific disclosure by

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Reichman (column 4 lines 54-62) for combining data and control packets onto a single frequency by time division multiplexing the packets, one skilled in the art would clearly have recognized that the data and control signals can be packetized and time division multiplexed to form a single packet stream. One skilled in the art would have been motivated to time division multiplex control and data packets to form a single packet stream as taught by Reichman in the device of Willebrand in order to transmit and receive data and control packets to and from each remote terminal, and for utilizing frequencies already used by the remote terminals without interfering with the passage of data between the remote terminals (column 2 lines 52-57 of Reichman). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have time division multiplexed control and data packets, as taught by Reichman, in the device of Willebrand.

Regarding Claim 10, the combination of Willebrand and Reichman teaches the optical wireless link of claim 9 further comprising: a servo detector adjacent the photodetector and configured to detect light intensity information (column 12 lines 1-9 of Willebrand); and a control information generator coupled to the servo detector and configured to generate control information from the light intensity information received from the servo detector (column 12 lines 21-24 of Willebrand); and wherein the control circuit embeds the control packets into the stream of data (reference numeral 46x in Figure 11, column 14 lines 1-19 of Willebrand; column 4 lines 54-62 of Reichman) to be conveyed by the beam transmitter (column 12 lines 51-67, column 13 lines 1-25 of Willebrand).

Regarding Claim 12, the combination of Willebrand and Reichman teaches the method of claim 9 wherein said first and second alignment feedback signals are transmitted as control

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packets and said extracting steps comprise detecting a destination address within said control packets (column 13 lines 66-67, column 14 lines 1-19 of Willebrand).

Regarding Claim 13, the combination of Willebrand and Reichman differs from the claimed invention in that it fails to specifically teach that the data packets are Ethernet frames and wherein the control packets are SubNetwork Access Protocol packets. However, Willebrand teaches that a variety of encoding and decoding schemes are possible for transmitting the data and control information to and from the wireless optical modules and also teaches that the system connected to each wireless link can be a LAN node or the like. This would have suggested to one skilled in the art that it would have been possible to encode the data signals in Ethernet frames, wherein the control packets are SubNetwork Access Protocol packets. Furthermore, since the data transmitted is within a LAN environment, one skilled in the art would clearly have recognized that Ethernet frames could have and more than likely would have been used. Moreover, one skilled in the art would clearly have recognized that it would have been possible to conform the control packets to the well known SubNetwork Access protocol being that Willebrand suggests a variety of encoding schemes. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have encoded the control information in Ethernet frames, wherein the packets are SubNetwork Access Protocol packets.

Regarding Claim 14, the combination of Willebrand and Reichman teaches the optical wireless link of claim 10 wherein the optical wireless device receives control information relating to alignment of its beam transmitter and generates control information relating to alignment of a remote optical wireless link (column 14 lines 20-26, 45-60, column 15 lines 1-10 of Willebrand).

Regarding Claim 22, Willebrand teaches a system for communicating a data stream between a first and second data devices comprising: a first data source / sink generating a stream of data (column 6 lines 53-57, reference numeral 46, 48, 52, 84 in Figure 11); a first optical wireless device (reference numeral 30 in Figure 11) coupled to receive the stream of data from the first data source / sink and including: a switch configured to receive the stream of data and to insert therein alignment control information (reference numeral 48 in Figure 11); a light beam transmitter coupled to the switch and configured to transmit the stream of data and control information on a single modulated light beam (reference numeral 24, 84, 52, 54, 44, 32 in Figure 11); a second optical wireless device comprising: a photodetector configured to receive the single modulated light beam (reference numeral 32, 44, 34, 36, 84 in Figure 11); a second switch configured to receive the stream of data and control information from the photodetector and to extract therefrom the control information (reference numeral 40 in Figure 11); a second light beam transmitter (reference numeral 84, 52, 54, 32, 44 in Figure 11); and a light beam transmitter alignment unit coupled to the second light beam transmitter and configured to align the second light beam transmitter in response to the control information (reference numeral 56, 106, 100 in Figure 11); and a second data source / sink coupled to the second optical wireless device and receiving therefrom the stream of data information (column 6 lines 53-57, reference numeral 42 in Figure 11). Willebrand differs from the claimed invention in that Willebrand fails to specifically teach that the data and control information are transmitted in packets. However, as discussed regarding claim 9, Willebrand's disclosure suggests that the data and control signals are packetized in that they each represent separate and distinct bundles of data organized in a specific way for transmission. The time division multiplexed control and data packets taught by

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Reichman further obviate packetized control and data information, as discussed regarding claim 9 above. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have partitioned the data and control information of Willebrand into packets and to have transmitted both simultaneously.

Regarding Claims 23-25, the combination of Willebrand and Reichman teaches the system of claim 22 wherein at least one of the first data source / sink and the second data source / sink is a computer network, telephone, computer (column 6 lines 53-57 of Willebrand).

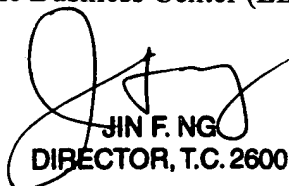
Conclusion

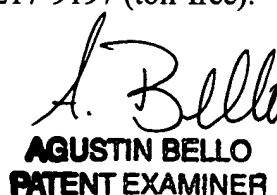
4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Knecht, Palmer and Javitt teach alignment systems.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (571) 272-3026. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


JIN F. NG
DIRECTOR, T.C. 2600


AGUSTIN BELLO
PATENT EXAMINER